

REMARKS

Claims 1, 2, 5-9, 12-15, and 18-25 were pending in the Present Application. Claim 8 has been cancelled without prejudice.

Examiner has observed that claims 12 and 23 include the words "adapted to", which have been identified as not necessarily limiting the scope of a claim. Applicants have amended claims 12, 23, and 25 to use the term "configured to", as suggested by Examiner.

Examiner has objected to claims 1, 15, and 23 because they contain language that may be interpreted in a manner which could render the claims indefinite. In particular, the expression: "whereby...may be..." is deemed to render the claims indefinite. Applicants have amended the claims to more definitely state the invention.

Examiner has objected to claim 6 because the phrase "said key field second hash" lacks antecedent basis. Applicants have amended claim 6 to correct the lack of antecedent basis.

Examiner has objected to claim 8 because the term "hashes" is unclear as to whether the term refers to first hashes or second hashes or both. Applicants have cancelled claim 8, thereby making the objection moot.

Examiner has rejected claims 1, 2, 8, 9, 12, 13, 15, 18, 21-23, and 25 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,470,329 to Livschitz ("Livschitz") in view of U.S. Patent No. 7,133,963 to Gilfix et al. ("Gilfix"). Applicants' invention requires that a first hash be generated pursuant to a first hash technology based upon database values of the mobile-copy database and that a second hash be generated pursuant to a second hash technology based upon the database records in the mobile-copy database. As explained in earlier

communications, Livschitz describes at least two embodiments of the Livschitz invention. First, a recursive hashing is made of smaller and smaller segments of the same block of data using the same hash function, H, until as Examiner has observed, the data blocks have been reduced to elemental data blocks having non-identical paired signatures. See col. 6, lines 30-37.

Applicants' claim, however, requires that there be a first hash technique of a first computational intensity based on database values of the mobile-copy database and a second hash technique of a second computational intensity based on the database records in the mobile-copy database.

Livschitz does not teach or suggest these claimed elements in Livschitz's embodiment shown in Figs. 1-4 and described in Livschitz's associated text.

Second, Livschitz teaches that different hash functions, "H" and "G" may be used in data synchronization. "[T]he signature of each elementary data block 42, 44 of the data sets A and B are computed upfront, as indicated at 52 and 54, and stored in arrays hA and hB in address spaces M1 and M2, respectively. Unique signatures are next found using a process similar to the one described in FIGS. 1-4...A hash function G operates on the arrays hA and hB to produce the signatures g(hA) and g(hB). Typically, the hash function G will be different from the hash function H...[T]he process then proceeds to isolate the elements of the arrays hA and hB that are different. A recursive process similar to the one illustrated in FIGS. 2 and 3 is used to isolate the elements of the arrays hA and hB that are different." Col. 7, line 66 - col. 8, line 19, emphasis added. Applicants' claimed invention does not create a signature from elementary data blocks of a database or part of a database using one hash function, H, and then use a different hash function, G, on an array formed from the signatures of the H hash function, as taught by

Livschitz in the second embodiment. Rather, Applicants' claimed invention requires that there be a first hash technique of a first computational intensity based on database values of the mobile-copy database and, if there is an out-of-match condition, that there be a second hash technique of a second computational intensity based on the database records in the mobile-copy database.

Even if the two embodiments of Livschitz are somehow combined, Applicants' claimed invention is not disclosed. Moreover, Examiner has observed that Livschitz does not describe the generation of a first hash pursuant to a first hash technique of a first computational intensity and upon a determination of an out of match condition between mobile-copy database values and network-copy database values, the generation of a second hash pursuant to a second hash technique of a second computational intensity. Therefore, Gilfix has been introduced to ostensibly teach this missing element.

Assuming, arguendo, that Gilfix is available as prior art, Gilfix is directed to content addressable data storage and compression for semi-persistent computer memory. Accordingly, Gilfix desires to search "...at a repeating memory interval...for a segment of the chunk that matches the memory block..." Col. 2, lines 16-20, emphasis added. Also see col. 5, lines 49-61 and col. 7, lines 37-38. For Gilfix to operate in accordance with the stated purpose of the Gilfix invention, matching of data segments must be accomplished. This searching for a match "...includes calculating (402) a weak checksum for the memory block. A weak checksum may be implemented as any function having a relatively low computational overhead." Col. 7, lines 42-45. "If a segment is found with a weak checksum equal to the weak checksum of the memory

block (408), therefore, the method of Fig. 6 includes calculating (410) a strong check sum for the memory block." Col. 8, lines 27-31, emphasis added. Importantly, Gilfix considers a finding of a non-match of weak checksums a failure and moves on to another segment check in the desire to find a match. See col. 8, lines 8-18. Thus, Gilfix does not teach Applicants' claimed invention or part of Applicants' claimed invention.

Additionally, Applicant asserts that the proposed combination of Livschitz and Gilfix is improper. When a combination of references is proposed, such a combination must exhibit the characteristic that the only difference between the claimed invention and the prior art references is the lack of actual combination of the elements in a single prior art reference and that, in combination, each element merely would have performed the same function as it did separately. "If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." MPEP 2143.01(V). "If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." MPEP 2143.01(VI). Applicant believes the combination of Livschitz and Gilfix requires modification to Gilfix. A modification to Gilfix, as stated above, yields an apparatus that both renders Gilfix to a state that is unsatisfactory for its intended purpose and changes the principle of operation of Gilfix. Thus, the combination proposed is improper, as shown above and a *prima facie* case of obviousness has not been stated.

Independent claims 15 and 23 share elements of independent claim 1 and are therefore believed allowable for the reasons given above for claim 1. Claims dependent upon these independent claims are also believed allowable as dependent upon presumed allowable independent claims.

Examiner has rejected claims 5-7 and 24 under 35 U.S.C. §103(a) as being unpatentable over Livschitz and Gilfix and further in view of U.S. Patent No. 5,809,494 to Nguyen. Examiner has also rejected claims 14, 19, and 20 under 35 U.S.C. §103(a) as being unpatentable over Livschitz and Gilfix and further in view of U.S. Patent No. 5,684,990 to Boothby. Claims 5-7, 14, 19, 20, and 24 are dependent upon presumed allowable independent claims and, as such, are themselves presumed allowable.

In light of the foregoing, Applicants believe the present Application to be in a condition suitable for allowance. Examiner is respectfully requested to withdraw the objections and rejections, to reconsider the claims as amended, and pass the present Application to allowance.

Respectfully submitted,

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